

2.4.11. Mission Utility and Integration

2.4.11.1. Purpose

The purpose of this test is to qualitatively assess the overall utility of the radar for the assigned mission and the integration and compatibility of the radar performance parameters, controls and displays within the airplane.

2.4.11.2. General

The mission utility and integration test is the most important test of the series. During this test, mission relatable ingresses and attacks are performed to qualitatively assess the radar. The quantitative assessments of the previous tests are used to support and justify the qualitative determinations made during the ingresses and attacks. Utility refers to the overall usefulness of the radar as it is implemented, as an aid to the mission. The radar parameters must match the expected operational needs. Integration refers to the way the radar has been blended into the entire airborne system. From the evaluator's standpoint, this characteristic is intimately tied into the area of human factors. The qualitative assessments in mission relatable scenarios specifically called for in the previous tests will also be performed during these ingresses and attacks.

Care should be taken to ensure that the evaluator does not get too involved in recording qualitative comments to the detriment of watching the progress of the intercept and evaluating the radar. A conscious effort should be made not to get too involved in looking for specifics on at least the first run to ensure that an overall qualitative assessment can be made. A voice recorder can be used to make comments without distracting the evaluator from the display or the outbound run can be used to record results. Multiple runs should be performed using different radar modes and mode combinations in as many different types of attacks as possible. The most likely scenarios should be performed first and others performed as flight time allows.

2.4.11.3. Instrumentation

Data cards are required for this test. A voice recorder is highly recommended.

2.4.11.4. Data Required

Record qualitative comments concerning the utility and integration of the radar. Record the effects of the parameters determined in previous tests during the ingresses and attacks as called for at the end of each test procedure.

2.4.11.5. Procedure

Select a mission relatable target in the test area that allows for a 35 to 40 nm ingress to the target location. Descend to a low ingress altitude and set an airspeed which would normally be selected for an attack of a defended target. Head inbound to the target and select a radar mapping mode with at least a 40 nm scale and a wide scan pattern useful for radar navigation. Perform radar navigation inbound to the target (for instance following a river or ridge line that leads to the target) and search for the target on the display. Continue to update the antenna elevation angle, display range and antenna pointing angle to optimize the display for navigation and target search. When the target breaks out, select the DBS modes and continue to update the target position. Execute the type weapon delivery most likely for the test airplane and the type of target selected. Turn outbound, selecting a mapping mode and navigate outbound from the target area to the start point. Repeat the ingress and attack using different delivery modes and if available, different target types.

2.4.11.6. Data Analysis and Presentation

Relate the qualitative deficiencies noted to their effects upon the performance of the ingresses and attacks. Note any limitations on tactics imposed by the radar parameters, utility or integration. For instance, the radar may not be able to detect the target early enough to set up and fire stand off weapons (that don't use external targeting) at their maximum range. The radar should not be driving tactics. Use the applicable results from the previous tests to support the qualitative results.

2.4.11.7. Data Cards

A sample data card is presented as card 34.

CARD NUMBER ____ TIME ____ PRIORITY L/M/H

AIR-TO-GROUND MISSION UTILITY AND INTEGRATION

[DESCEND TO ____ FEET AGL AND SET MACH=____. SELECT THE MAP MODE, ____ NM RANGE SCALE AND THE ____° SCAN ANGLE LIMIT. START AT ____ AND FLY INBOUND TO THE ____ TARGET AT AN INITIAL HEADING OF ____ . RADAR NAVIGATE TOWARD THE TARGET AREA AND WHEN IN CONTACT WITH THE TARGET SELECT DBS. PERFORM A SIMULATED ____ DELIVERY. TURN OUTBOUND AND NAVIGATE BACK TO THE START POINT. REPEAT WITH DIFFERENT DELIVERIES AND TARGETS.]

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